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Mode d'emploi

Easypure II LF

Barnstead International

Apogent

EASYpure® II LF

OPERATION MANUAL AND PARTS LIST

Series 1286

Model D7381
100-240 Volts

LT1286X1 • 4/8/03

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Safety Information

Alert Signals

Warning
Warnings alert you to a possibility of personal injury.

Caution
Cautions alert you to a possibility of damage to the equipment.

Note
Notes alert you to pertinent facts and conditions.

Your Barnstead EASYpure® II LF has been designed with function, reliability, and safety in mind. It is your responsibility to install it in conformance with local electrical codes. For safe operation, please pay attention to the alert signals throughout the manual.

This manual contains important operating and safety information. You must carefully read and understand the contents of this manual prior to the use of this equipment.

Water purification technology employs one or more of the following: chemicals, electrical devices, mercury vapor lamps, steam and heated vessels. Care should be taken when installing, operating or servicing Barnstead products. The specific safety notes pertinent to this Barnstead product are listed below.

Warnings

To avoid electrical shock, always:

1. Use a properly grounded electrical outlet of correct voltage and current handling capacity.

2. Do not locate the EASYpure II LF directly over equipment that requires electrical service. Routine maintenance of this unit may involve water spillage and subsequent electrical shock hazard if improperly located.

3. Replace fuses with those of the same type and rating.

4. Do not disassemble water lines or remove cartridges where spilled water could contact equipment that requires electrical service. Electrical shock hazard could result.

5. Disconnect from the power supply prior to maintenance and servicing.

To avoid personal injury:

1. Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite such materials.

2. Do not use in the presence of highly corrosive substances such as bleach or acid baths; fire may result.

3. This device is to be used with water feeds only. Sanitizing/cleaning agents must be used in compliance with instructions in this manual. Failure to comply with the above could result in explosion and personal injury.

4. Avoid splashing disinfecting solutions on clothing or skin.

5. Ensure all piping connections are tight to avoid chemical leakage.

6. Ensure adequate ventilation.

7. Carefully follow manufacturer's safety instructions on labels of chemical containers and material safety data sheets.

8. Depressurize system prior to opening cartridge access door or removing top cover.

9. Refer servicing to qualified personnel.

Introduction

Product Overview

The Barnstead EASYpure II LF is a line-fed water purification system designed to be simple to use and to provide reagent grade water that exceeds ASTM, Type I, CAP and NCCLS Type I standards. It uses a three-stage deionization process and a 0.2 micron final filter to polish pretreated water (distilled, deionized, or reverse osmosis). Water resistivity is continuously sensed by a resistivity cell and displayed on a digital display.

EASYpure II LF

General Specifications

Dimensions and Clearance Requirements

EASYpure II LF dimensions: 12 " W x 17 1/8" H x 19" D (30.5 cm x 43.5 cm x 48.3 cm).

Clearances:
Right side - 11" (27.9 cm) minimum for cartridge removal.
Left side - 12" (30.5 cm) minimum.
Above - 12" (30.5 cm) minimum for removal of the top cover.

Electrical Requirements

The EASYpure II LF is equipped with two power cords and corresponding fuses taped to each power cord to be plugged into a grounded electrical outlet of the appropriate voltage.
Model D7381 - 100-240 VAC +5%, -10% at 47-63 Hz.

Feedwater Requirements

The EASYpure II LF requires water pretreated by either distillation, deionization or reverse osmosis meeting the following criteria:

TOC: Less than 1.0 ppm.
Turbidity: 1.0 N.T.U. maximum
Temperature: 40°F - 104°F (4.4°C - 40°C)

TDS:
RO - Less than 50 ppm as $CaCO_3$
DI - Less than 10 ppm as $CaCO_3$
Distilled - Less than 2 ppm as $CaCO_3$

Pressure Range: Gravity feed to 100 psig (7 kg/cm^2) maximum.
Flow Rate: Greater than 0.26 gpm (1.0 lpm) at positive pressure.
Feedwater Source: to connect 1/4” NPT fitting with 10’ of 3/8” O.D. tubing provided

Product Water

Quality
Resistivity: Greater than 18.0 MΩ-cm (Conductivity less than .055 µs/cm)
TOC: 5-10 ppb
Flow rate
0.29 gpm (1.1 lpm) maximum at minimum inlet feedwater pressure of 30 psig (2.1 kg/cm^2) and with a new D3750 final filter.
Bacteria: Less than 1 CFU/mL

Environmental Conditions

Operating: 4°C - 40°C; 20% - 80% relative humidity, non-condensing. Installation Category II (overvoltage) in accordance with IEC 664. Pollution Degree 2 in accordance with IEC 664.

Altitude limit: 3,500 meters.
Storage: -25°C - 65°C; 10% to 85% relative humidity.

Declaration of Conformity

Barnstead International hereby declares under its sole responsibility that this product conforms with the technical requirements of the following standards:

EMC:	EN61000-3-2	Limits for Harmonic Current Emissions
	EN61000-3-3	Limits for Voltage Fluctuations and Flicker
	EN 61326-1	Electrical Equipment for Measurement, Control, and Laboratory Use; Part I: General Requirements
Safety:	EN 61010-1	Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use; Part I: General Requirements

per the provisions of the Low Voltage Directive 73/23/EEC, as amended by 93/68/EEC.

The authorized representative located within the European Community is:

Electrothermal Engineering, Ltd.
419 Sutton Road
Southend On Sea
Essex SS2 5PH
United Kingdom

Copies of the Declaration of Conformity are available upon request.

Note

Cartridges and the 0.2 micron final filter are **not** provided with the EASYpure II LF and must be ordered separately:

EASYpure Kit Ultra low Organics Deionized Feed (No Final Filter)
Part No. D502124

EASYpure Kit Ultra low Organics Distilled or RO Feed (No Final Filter)
Part No. D502125

EASYpure Kit Type I Deionized Feed (No Final Filter)
Part No. D502126

EASYpure Kit Type I Distilled or RO Feed (No Final Filter)
Part No. D502127

0.2 Micron Final Filter
Part No. D3750

Unpacking

Remove the unit from its shipping container and ensure that the following items are removed from the packaging materials before discarding:

a) EASYpure II LF unit

b) Wall bracket (BC1190X2)

c) Approximately 10’ (3 m) of 3/8” O.D. of feed-water tubing provided with a quick disconnect insert on one end and a 1/4” NPT fitting on other end (TU1119X7)

d) Sanitization syringe (CMX25)

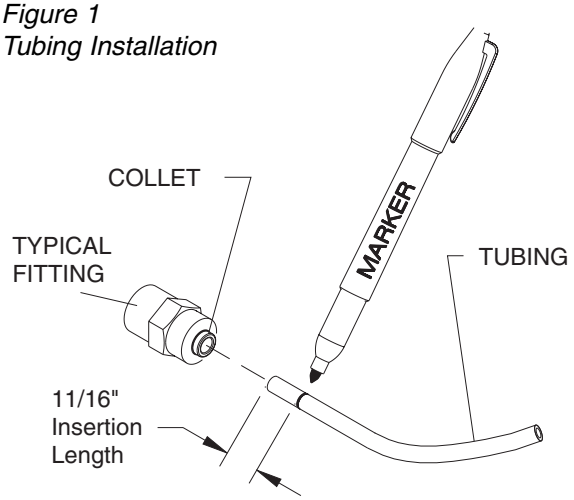
e) North American power cord with attached (1.6 amp) fuse bag (CRX72)

f) European power cord with attached (0.63 amp) fuse bag (CRX70)

g) Operation Manual (LT1286X1)

Installation

Figure 1
Tubing Installation



Note
For easier insertion, wet the end of the tubing with water.

Note
Figure 1 & 2 will be used with the optional remote dispenser.

Water Connection Details

Push-to-Connect Fitting Tubing Installation

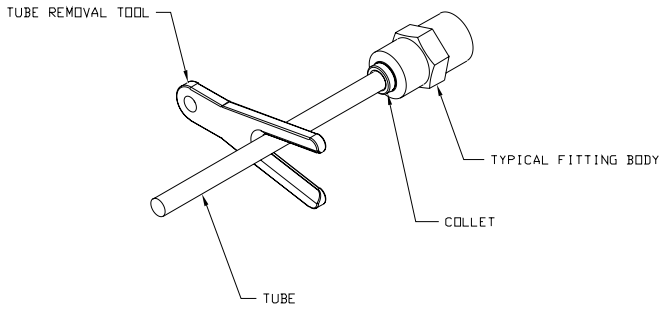
The following instructions will apply when you need to attach a piece of tubing to your EASYpure II LF during installation, unless otherwise noted in the installation instructions. To make tubing connections:

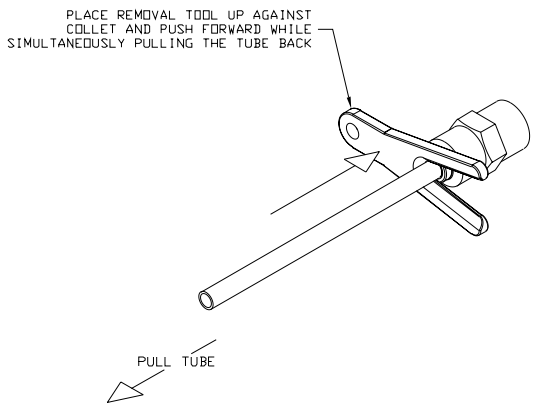
1. Make sure the tubing is cut off reasonably square and that no plastic burrs or ridges are present.
2. Mark from end of tube an insertion length of 11/16”.
3. Wet the tube end with water and insert the tube straight into the fitting until it bottoms out on the interior shoulder and the insertion mark is no longer visible.

Push-to-Connect Fitting Tubing Removal (Refer to Fig. 1 & 2)

1. Using the tool provided (AYX23), push the collet toward the body while pulling on the tubing to release the tube.

Figure 2
Tubing Removal





Tubing Adapter Fittings

1. Completely disassemble the fitting. Refer to Figure 3 to familiarize yourself with the names of the component parts.

2. Make sure the tubing is cut off reasonably square and that no plastic burrs or ridges are present.

3. Place the grab ring and backup ring in the hex nut in the order and orientation shown in Figure 3. Thread the nut onto the adapter. DO NOT use the o-ring at this time.

4. Push the tubing through the nut until it bottoms out in the adapter.

5. Remove the adapter nut and tubing. Place the o-ring over the tubing. Be careful not to push the backup ring or grab ring further back on the tubing when installing the o-ring.

6. Install the hex nut on the adapter and hand tighten.

Caution
Do not tighten tube fitting hex nut with a wrench. Tight connections can be easily made by hand.

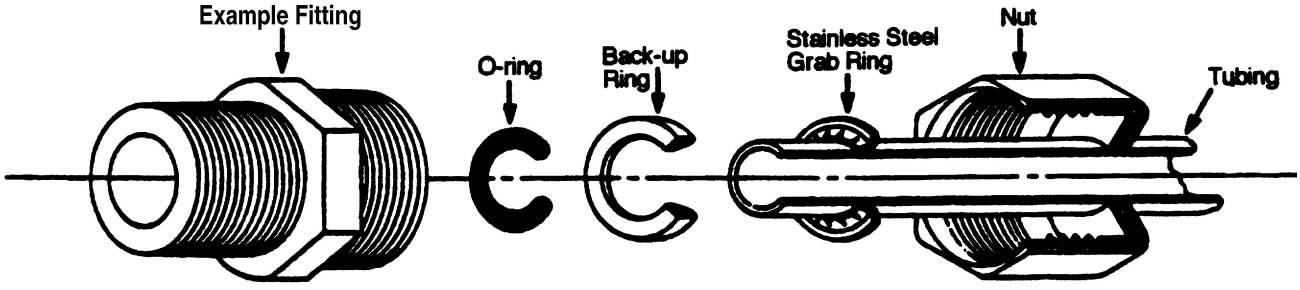


Figure 3: Typical Polypropylene Tubing Adapter Installation

Note
The quick disconnect fittings contain valves and if not properly inserted water will not flow.

Quick Disconnect Fittings

These fittings are found on the water inlet. (See Figure 4)
To insert the inlet tubing:

1. Press on the metal thumbpad on the unit to ensure the fitting is open.

2. Install the coupling insert into the coupling body until you hear a click. Gently pull on the tubing to ensure it is secure.

3. To remove, press the metal thumbpad to release and pull coupling insert out.

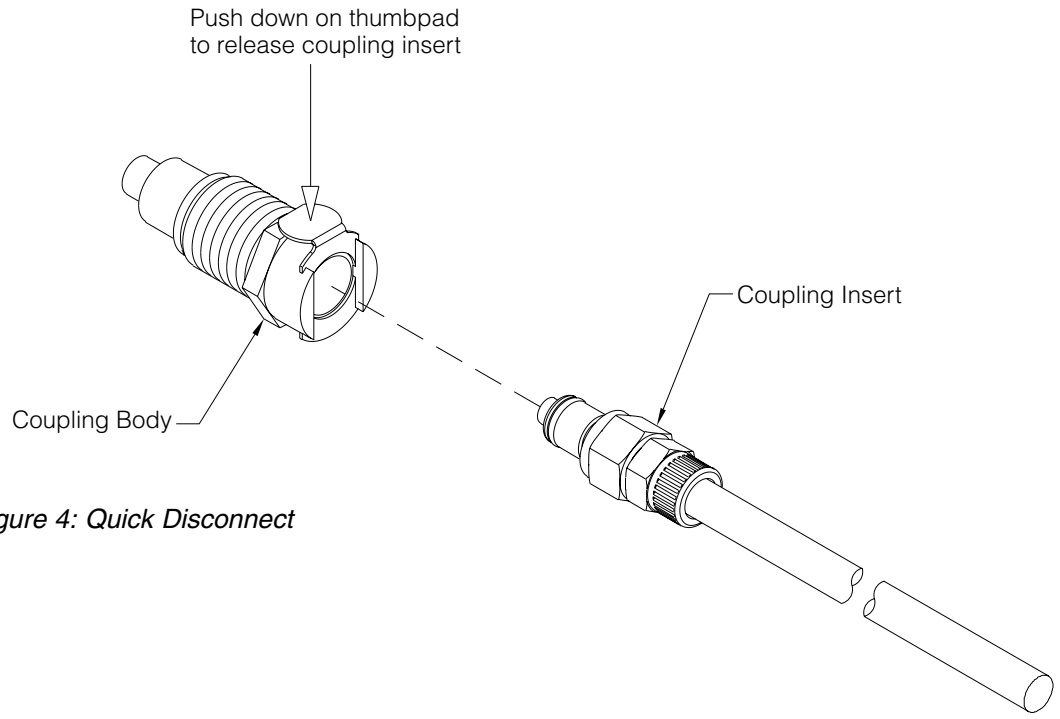


Figure 4: Quick Disconnect

Note
The EASYpure II LF's cartridges must be installed in the proper position.

The upper end cap is the one with the right angle turn and two flanges. The lower end cap extends straight out from the cartridge.

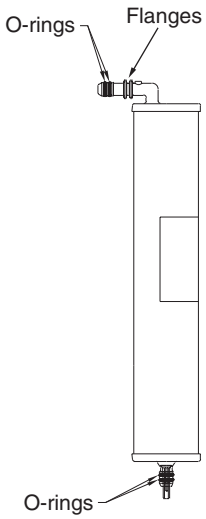


Figure 5: Cartridge Installation

Component Installation

Initial Cartridge Installation (See Fig. 5)

1. Open cartridge access door on the right side of the unit by pushing the door latch back.

2. Remove a new Pretreatment cartridge (Catalog No. D50230 or D50231) from its plastic bag.

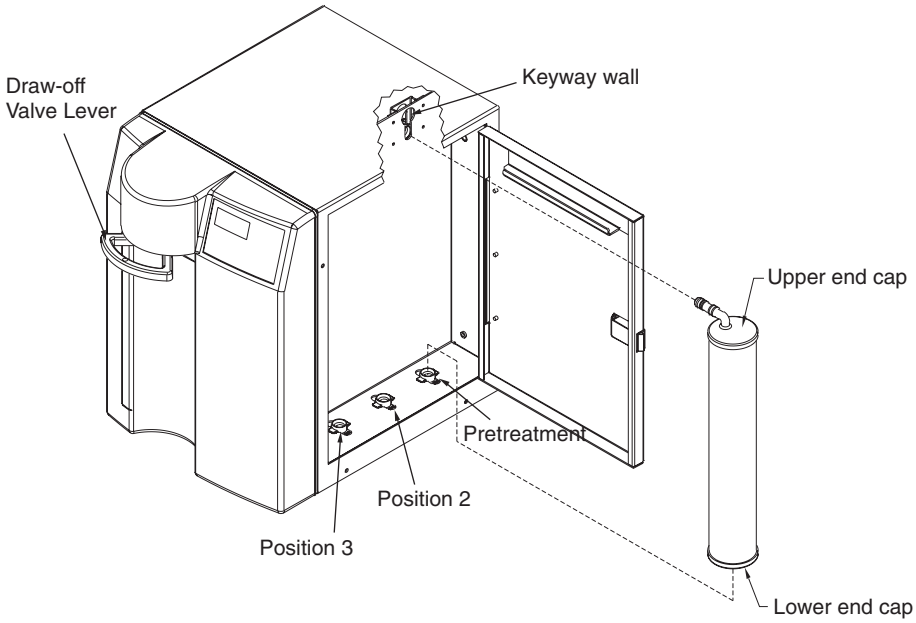
3. Wet the o-rings on both end caps with water.

4. Press the upper end cap into the pretreatment position until it bottoms out. The two flanges on the upper end cap should be able to slide down on each side of the keyway wall.

5. Lower the cartridge and insert the lower end cap into the lower socket until it is firmly seated.

6. Repeat steps 2 - 5 with the Ultrapure cartridge (Catalog No. D50233) and then the EASYpure High Purity/Low TOC (Catalog No. D50229) or Ultrapure cartridge, placing them in positions 2 and 3.

7. Close and latch cartridge access door. This serves to verify the cartridges have been properly seated.



Note
Please refer to the **General Specifications** section for clearance requirements.

Caution
Wall composition, condition and construction, as well as fastener type, must be considered when mounting this unit. The mounting surface and fasteners selected must be capable of supporting a minimum of 150 lbs. Inadequate support and/or fasteners may result in damage to mounting surface and/or equipment. If you are unsure of mounting surface composition, condition and construction or correct fasteners, consult your building maintenance group or contractor.

Warning
Do not locate the EASYpure II LF directly over equipment that requires electrical service. Routine maintenance of this unit may involve water spillage and subsequent electrical shock hazard if improperly located.

Note
It is important that the storage reservoir outlet to the EASYpure II LF, be at the same level or higher than the inlet of the EASYpure II LF system.

Warning
Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite such materials.

Warning
Do not use in the presence of highly corrosive substances such as bleach or acid baths; fire may result.

Locating and Mounting Unit

Bench Mounting

Place the EASYpure II LF on a flat, level bench top that is accessible to water and electricity, and that is convenient to your work area, noting the Clearance Requirements.

Wall Mounting

Install the EASYpure II LF on a wall in a convenient location that is accessible to water and electricity.

1. Locate the wall bracket packed separately from the unit.
2. Using the wall bracket as a template, locate and drill the mounting holes in the wall. A minimum of four (customer supplied) fasteners will be required — two on the top and two on the bottom.
3. Attach the wall bracket to the wall using the customer supplied fasteners.
4. Remove the locking screws on each side of the wall bracket.
5. Pull the two locking slides on each side of the wall bracket out as far as they will go.
6. Hang the unit on the wall bracket by sliding the mounting pins into the wall bracket slots.
7. Push the locking slides on each side of the wall bracket in as far as they will go.
8. Replace the locking screws.

The optional remote dispenser is now ready to be attached to the EASYpure II LF.

Warning
To avoid electrical shock, always disconnect from power supply before maintenance and servicing. Refer servicing to qualified personnel.

Note
Save U-shaped tube for future use.

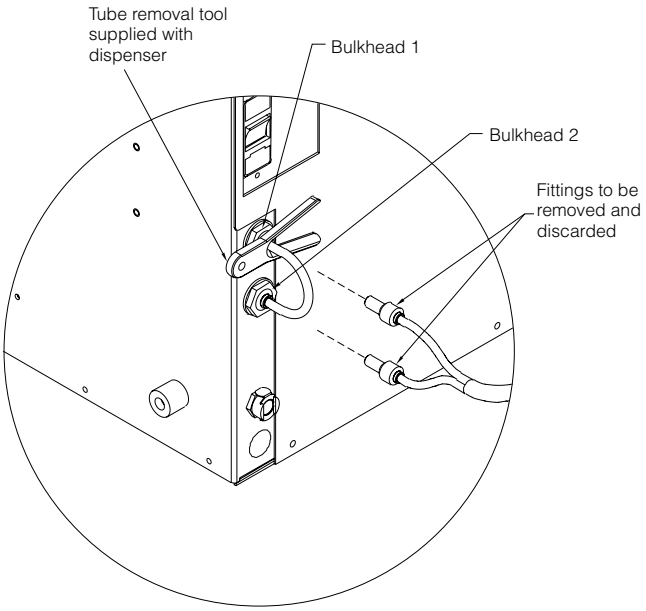


Figure 6: Tube Connections

Note
The recirculating and feed lines of the dispenser are NOT interchangeable, so orientation of the two connections is important.

Remote Dispenser (Optional Accessory Part No. D11981)

The remote dispenser is best installed after the EASYpure II LF system has been either bench or wall mounted. The remote dispenser can be located up to 6' away from the unit. Please refer to the remote dispenser operating and installation instructions for additional information.

Tube Connections

Prepare the EASYpure II LF system for attaching the remote dispenser as follows:

1. Make sure unit is depressurized, water supply is disconnected and unit power is disconnected.

2. Using the tube removal tool supplied with dispenser, disconnect "U" shaped tube from left rear of unit as shown. Press in on collet of bulkheads with tool while pulling on tube. Work back and forth from each bulkhead until tube is free. Refer to section **Push-to-Connect Fitting Tubing Removal** for further details.

3. Mark or note orientation of tubes as "Remote 1" and "Remote 2". The recirculating and feed lines of the dispenser are NOT interchangeable, so orientation of the two connections is important. Remove and discard fittings on the end of the dispenser tubes.

4. Press tube labeled "Remote 1" into bulkhead labeled "1" as shown. Refer to section **Push-to-Connect Fitting Tubing Installation** for further details.

5. Press tube labeled "Remote 2" into bulkhead labeled "2" as shown.

6. The remote dispenser is now properly attached to the EASYpure II LF.

7. Do not install the 0.2 micron final filter until after the air purge and sanitization procedures have been completed.

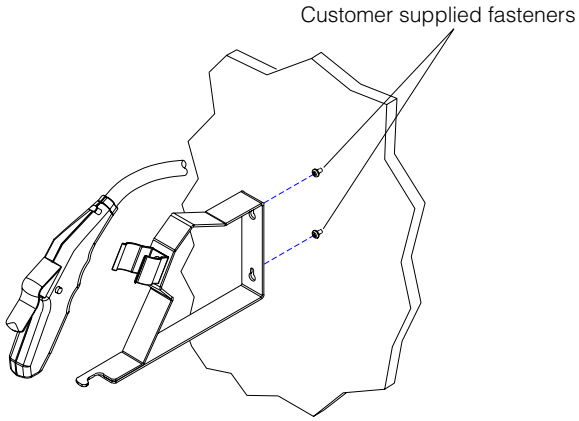
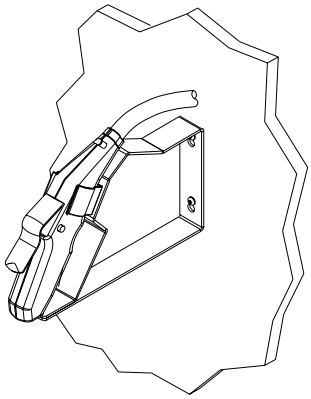


Figure 7: Remote Wall Bracket Mounting



Caution
Do not connect feed water until directed to do so during the **Air Purge** section.

Note
Ensure there are no kinks in the tubing that could restrict water flow.

Remote Dispenser Wall Bracket Mounting

1. Determine location of bracket in relation to EASYpure II LF. Using the wall bracket as a template, locate and drill the mounting holes in the wall. Install appropriate fasteners (customer supplied) into wall.

2. Slide bracket onto fasteners and secure

3. Mount dispenser onto bracket as shown.

Water Service Connections

Feed Water

1. Locate the length of 3/8” O.D. tubing provided with a quick disconnect insert on one end and a 3/8” O.D. X 1/4 NPT tubing adapter on the other.

2. Install the tubing adapter into your incoming water line. We recommend a customer supplied shut off valve be installed in your feed water line. Do not connect the feedwater to your EASYpure II LF until you are told to do so. (See **Air Purge** section.)

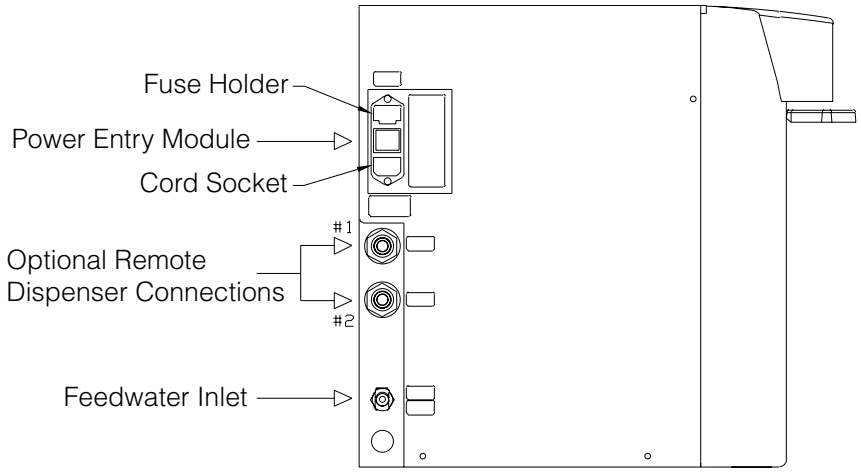


Figure 8: External Unit Connections

Warning
To avoid electrical shock, always use a properly grounded electrical outlet of correct voltage and current handling capacity.

Power Connections (See Fig. 8)

1. The power connection is located on the left side of the unit, in the upper back corner.

2. Determine which power cord you need (this will be based on your country and outlets available in your lab). Both North American and European power cords are provided with the unit.

3. Remove the fuse holder, install the fuses included with the power cord to be used, and reinstall holder.

4. Verify power switch is turned off and attach receptacle end of power cord into the power socket.

5. Plug other end of power cord into facility power.

Caution
Do not allow EASYpure II LF to operate unless water is available to unit.

Air Purge

1. If the optional remote dispenser is connected to the EASYpure II LF, place the draw-off trigger into the locked position by depressing the button on the right side of the dispenser at the same time as the trigger is depressed.

   OR

   If there is no remote dispenser being utilized, ensure that the hose barb is attached to the draw-off valve fitting and depress the draw-off valve lever to open the draw-off valve.

2. Place a suitable container under the opened valve to collect water while purging air.

3. Connect the water supply to the EASYpure II LF and open the customer supplied shut-off valve.

4. Turn the power switch on.

Note
See the **Controls and Normal Operation** section to familiarize yourself with the controls of the unit.

5. Press the START switch on the control panel.

6. When air is purged and a steady stream of water is flowing from the opened valve, rinse approximately 5 liters of water through the valve to drain.

7. Close the draw-off valve.

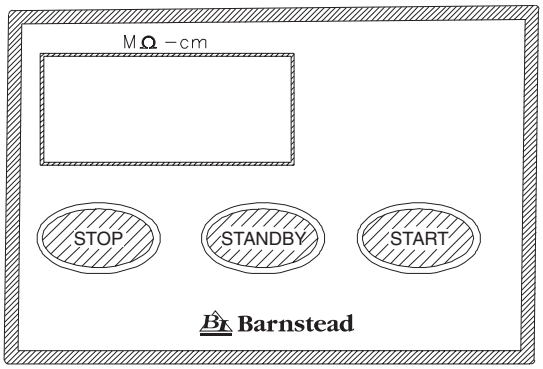
8. Refer to the **Sanitization** section and sanitize the EASYpure II LF.

Controls and Normal Operation

Note
On initial power-up, the display will run the following sequence:

- Model type is scrolled -LF
- The display's LEDs will light up,
- Followed by the unit software revision,
- Finally, IdL will be displayed.

Figure 9: Control Panel



Note
When the unit is first put in the Run Mode, the display will show 10.0 for a few seconds. This is an arbitrary number that indicates the unit is running. Any number that appears after 10.0 indicates purity.

Power Switch

The power switch on the EASYpure II LF is located on the left side of the unit, directly above the power cord receptacle.

Control Panel

The EASYpure II LF control panel incorporates three switches and a digital display.

Switches (See Fig. 9)

When the main power switch is on, the three switches on the control panel function as follows:

1. START: Pressing the START switch when the unit is in either the Stop ("IdL") or Standby ("SbY") Mode will put the unit into Run Mode.

2. STANDBY: Pressing the STANDBY switch when the unit is in either the start (run) or stop ("IdL") mode will put the unit into a Standby Mode.

3. STOP: Pressing the STOP switch when the unit is in either the start (run) or Standby ("SbY") Mode will put the unit into a Stop ("IdL") Mode.

Display

In addition to displaying the temperature compensated (25°C) resistivity in megohms-cm, the display also indicates operational modes and error indicators. The following is what can appear on the display:

SbY	Er1
rEC	Er2
IdL	Er4
	Er5

Note
On initial start-up, the display may display “Er1”. This is caused by air around the resistivity cell and should soon be replaced by a resistivity reading. If “Er1” does not go out after the pump has run for a minute or if it appears any time while the EASYpure II LF is in operation, refer to the “Troubleshooting” section of this manual.

Note
Do not place in IdL mode or turn off the EASYpure II LF unit during non-work hours. Doing so will allow bacterial growth or contamination of the water in the system. As a result, the system will require a lengthy rinse-up period at the beginning of the work day to achieve high-quality product water.

Note
If the unit is in Standby and power to the unit is turned off or lost, the unit will return to Standby once power is restored.

Operational Modes

Run Mode

Since not all qualities of permissible feedwater will reach maximum resistivity after one pass through the unit’s cartridges (especially as the cartridges near exhaustion), the EASYpure II LF has two operational modes; Run and Standby.

It is recommended that the EASYpure II LF be left in the Run Mode during the day. In the Run Mode, the purity meter display indicates the resistivity of the water available for draw off. Allow the water’s resistivity to rise to the desired purity before drawing off water.

Standby

In Standby (“SbY”) Mode, the pump will restart for ten minutes out of every hour (i.e 50 minutes off, 10 minutes on), during which time the display reads “rEC” which indicates recirculation. This will allow the unit to produce high quality water quickly upon being placed in the Run Mode. It is recommended that the EASYpure II LF be placed in the Standby Mode during non-work hours. At the end of the work day, press the STANDBY switch to place the unit in Standby mode. “SbY” will appear on the display.

Idle Mode (“IdL”)

“IdL” indicates the unit is powered and waiting to be placed in Run or Standby Mode.

Note
Draw off 50 to 100 ml of water from system and discard prior to drawing water for **each** use.

Dispensing Water from Unit

1. Remove the protective cap from the filter bell.
2. Place a container under the draw-off valve.
3. Depress the draw-off valve lever.
4. When draw off is complete, lift the draw-off valve lever and replace the protective cap on the filter bell.

Dispensing Water from Remote Dispenser

1. Remove the protective cap from the filter bell.
2. If desired, remove the remote dispenser from the wall bracket.
3. The dispenser will deliver a steady stream when you depress the draw-off trigger. For unattended operation, depress the button on the right side of the dispenser at the same time as the trigger is depressed. To unlock the draw-off trigger and stop dispensing water, press the draw-off trigger.
4. When draw off is complete, release the draw-off trigger and replace the protective cap on the filter bell.

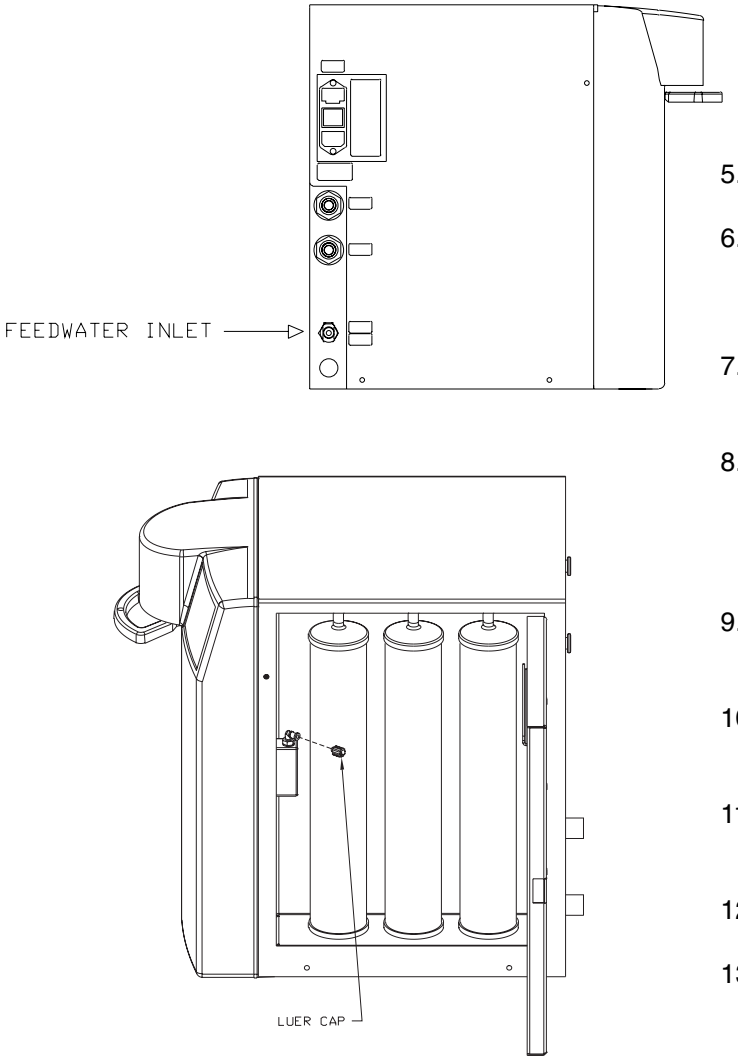
Maintenance and Servicing

Warning
Disconnect from the power supply prior to maintenance and servicing.

Do not disassemble water lines or remove cartridges where spilled water could contact equipment that requires electrical service. Electrical shock hazard could result.

Refer servicing to qualified personnel.

Figure 10: Sanitization



Sanitization

Your EASYpure II LF has been shipped with a sanitization syringe (Cat. No. CMX25). When the system is new, or whenever new cartridges are installed, the system should be sanitized. Sanitize your EASYpure II LF as follows:

1. If the 0.2 micron final filter is installed, remove it and attach the hose barb that came installed on the unit.
2. Turn the system power off.
3. Disconnect the feed water supply at the inlet quick disconnect connection.
4. Ensure that the remote dispenser (if applicable) is open and pointed to drain. If no remote dispenser is present, ensure that the unit draw-off valve is open and a container is placed under the draw-off valve.
5. Remove the sanitization syringe from wrapper.
6. Open right side door of unit and remove the luer cap on the sanitization block, located on the inside left of the cartridge area.
7. Remove the syringe cap and attach syringe to the luer fitting on the sanitization block.
8. Slowly inject the solution into the system. Some water will be displaced from the remote dispenser or unit draw-off valve. Avoid injecting air into the system.
9. Remove the syringe and replace the luer cap on the sanitization block.
10. Close the remote dispenser or unit draw-off valve.
11. Reconnect the feed water supply removed in step 3.
12. Allow the system to stand for at least 1 hour.
13. If using an optional remote dispenser, turn system power on and from “IdL”, start the system by pressing the START switch and allow to run

Warning
Avoid splashing disinfecting solutions on clothing or skin.

Ensure all piping connections are tight to avoid chemical leakage.

Ensure adequate ventilation.

Carefully follow manufacturer's safety instructions on labels of chemical containers and material safety data sheets.

Note
It is suggested that Teflon® tape be applied to the threads of the 0.2 micron final filter to ensure a tight seal.

for 3-5 seconds. Press the STOP switch and leave the system in "IdL" for 1 hour. If no remote dispenser is used, proceed to step 14.

14. Open the remote dispenser and point to drain. If no remote dispenser is present, ensure the unit draw-off valve is open and a container is placed under the hose barb that was attached to the draw-off valve fitting in step 1.

15. From "IdL" press the START switch and dispense water for 5 minutes to rinse the sanitant from the system.

16. After the 5-minute dispense is completed, close remote or unit draw-off valve.

17. Remove the hose barb attached in Step 1. Keep this hose barb for future use.

18. Remove a new 0.2 micron final filter and bell assembly from its bag and insert it into the fitting in the draw-off valve and remote dispenser (if available.) Gently turn it clockwise until it is fully seated.

19. Remove the protective cap from the filter bell. Open the draw-off valve or remote dispenser and flush 10-15 liters of water through the 0.2 micron final filter.

20. The sanitization is now complete.

Teflon® is a registered trademark of DuPont

Warning
Depressurize system prior to opening cartridge access door.

Note
Ensure you have an o-ring (part # GSX29) available prior to cleaning resistivity cell.

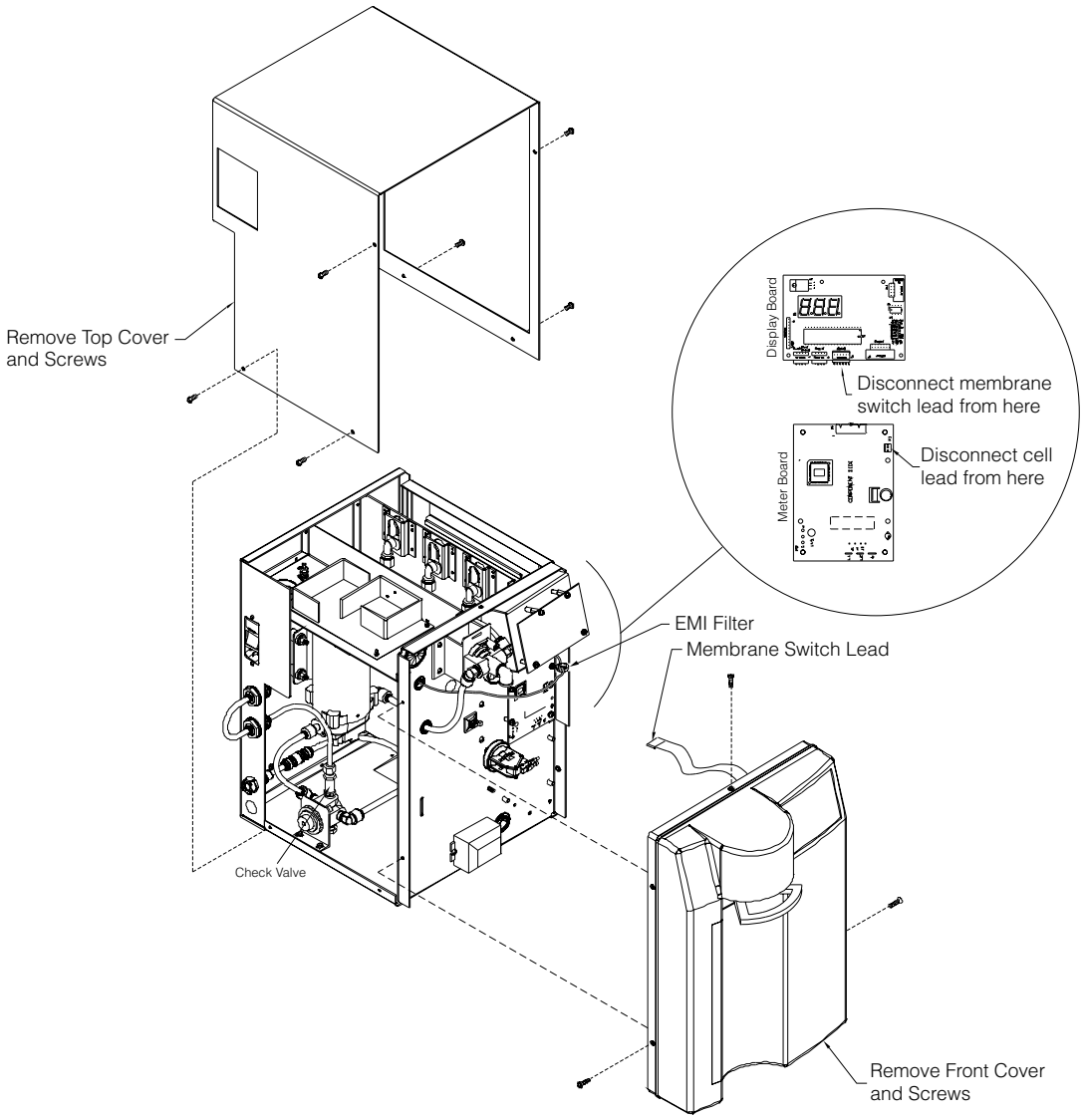
Figure 11: Disconnecting Resistivity Cell

Cleaning the Resistivity Cell (See Fig. 11 & 12)

1. Turn off the EASYpure II LF and disconnect it from the power supply. Remove the power cord.

2. Disconnect incoming water line at quick disconnect. Depressurize the system by opening the optional remote dispenser or unit draw-off valve, allowing water to drain until no more flows from the valve(s).

3. Remove the screws securing the EASYpure II LF top cover.

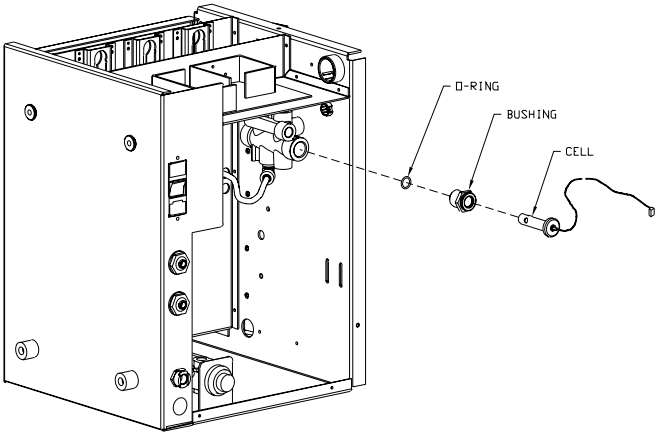


Caution
The cell electrodes are etched to improve wetting characteristics. Do not mechanically abrade or damage this surface (i.e. do not clean with a wire brush, sandpaper, etc.).

Do not immerse the entire cell assembly in cleaning solution, only the electrode portion.

Warning
Carefully follow manufacturer's safety instructions on labels of chemical containers and material safety data sheets.

Figure 12: Removing Resistivity Cell



4. Remove the cover by lifting it straight up.

5. Remove the 0.2 micron final filter from the draw-off valve. Carefully remove the front cover screws and pull the cover off. Disconnect membrane switch lead from the display printed circuit board (see Fig. 11).

6. Disconnect the cell lead from the meter board and gently pull the cable out of the EASYpure II LF frame. Note orientation.

7. Unscrew bushing and remove the cell (see Fig. 12).

8. Carefully remove and discard the o-ring before cleaning the cell.

9. Wash the cell in a mild detergent solution followed by a 10% Hydrochloric or 10% Sulfuric acid solution (follow acid manufacturers warnings and recommended handling procedures found on package labels and Material Safety Data Sheets). This may be done in an ultrasonic cleaner or with a soft brush.

10. Thoroughly rinse the cell in deionized or distilled water following the detergent and acid cleaning.

11. After cleaning, reinstall with the replacement o-ring on cell (part # GSX29).

12. Reinstall the cell and hand tighten (see Fig. 12). Reroute the cable up through the housing and reconnect.

13. Reinstall membrane switch lead. While lifting draw-off valve handle, replace the front cover and secure with screws. Reinstall the 0.2 micron final filter.

14. Reinstall the EASYpure II LF top cover.

15. Reattach the power cord and reconnect the unit to the power supply.

16. Reconnect the water supply.

Warning
Disconnect from the power supply prior to maintenance and servicing.

Warning
Refer servicing to qualified personnel. Do not disassemble water lines or remove cartridges where spilled water could contact equipment that requires electrical service. Electrical shock hazard could result.

Warning
Depressurize system prior to opening cartridge access door.

Note
The cartridges will still contain water when removed. Therefore, you will want to have a sink, bucket or other waterproof container available to place them in after removal.

Note
The two flanges on the end cap should be able to slide down on each side of the keyway wall.

General Cleaning Instructions

Wipe exterior surfaces with lightly dampened cloth containing mild soap solution.

Component Replacement

Cartridge Replacement and Rinse Up

The frequency with which you will need to replace cartridges is dependent on your feedwater characteristics, your purity requirements, and your daily usage. Replace the cartridges when the product water purity drops below acceptable levels of resistivity or when organic levels become too high.

Remember, used cartridges can be recycled; see P.U.R.E. information packed with your new cartridges.

1. Turn off the EASYpure II LF and depressurize system by disconnecting unit feedwater, opening draw-off valve and allowing water to drain from the unit until draining ceases.

2. Open the cartridge access door by pushing back the door latch.

3. Remove the cartridge in the pretreatment position by pulling the cartridge straight up until the upper socket is in the keyhole of the keyway. Next pull the cartridge straight out.

4. Remove a new Pretreatment cartridge (Catalog No. D50230 or D50231) from its plastic bag.

5. Wet the o-rings on both ends.

6. Press the upper end cap into the pretreatment position until it bottoms out. Refer to Fig. 5 if needed.

7. Lower the cartridge and insert the lower end cap into the lower socket until it is firmly seated.

8. Repeat steps 3-7 with the EASYpure Ultrapure (Catalog No. D50233) cartridge, placing it in position 2 and either the Ultrapure or the EASYpure High Purity/Low TOC (Catalog No. D50229) cartridge in position 3. Be sure to remove and replace one cartridge at a time.

9. Close the cartridge access door and reattach feedwater.

10. Remove the old 0.2 micron final filter(s) from the draw-off valve and remote dispenser (if available.)

11. Install the hose barb into the fitting in the draw-off valve.

12. Turn unit on and from “IdL” press the START button to begin unit operation.

13. Rinse approximately 5 liters of water through the draw-off valve or remote dispenser (if available) to drain.

14. Close the draw-off valve.

15. Sanitize the EASYpure II LF. Refer to the **System Sanitization** section of this manual.

Warning
Depressurize system prior to removing cover.

0.2 Micron Final Filter Replacement

Replace the 0.2 micron final filter whenever any of the following conditions occur: the product water flow rate is reduced or you experience bacteria break through, when cartridges are replaced, or when system is sanitized. The 0.2 micron final filter is shipped assembled with a bell. To replace the 0.2 micron final filter assembly on draw-off valve or remote dispenser:

Note
It is suggested that Teflon® tape be applied to the threads of the 0.2 micron final filter to ensure a tight seal.

1. Remove the old 0.2 micron final filter assembly by turning it to the left to unscrew it from the draw-off valve.

2. Remove the new 0.2 micron final filter assembly from its bag and insert it into the draw-off valve. Gently tighten, turning the filter to the right.

3. Rinse 5-10 liters of water through the filter to drain prior to using the product water.

Warning
Replace fuses with those of the same type and rating.

Fuse Replacement (See Fig. 8)

1. Turn off the EASYpure II LF and disconnect it from the power supply. Remove the power cord.
2. Pull out the fuse drawer located in the power entry module.
3. Remove old fuses and replace with fuses of the same type and rating. (See **Consumables** section.)
4. Replace fuse drawer on left side of unit.
5. Reattach the power cord and reconnect the unit to the power supply.
6. Operate normally.

Unit Shutdown

If the EASYpure II LF will be inactive for a period up to a month, place the unit in Standby. For periods of time greater than a month, disconnect water and power sources, drain unit, close customer supplied water valve, and remove and discard cartridges and final filter. See **Sanitization, Cartridge Replacement and 0.2 Micron Final Filter Replacement** sections for reactivation.

Troubleshooting

Problem	Possible Causes	Action
EASYpure II LF completely inactive. (Pump not operating, display not lit, etc.)	No electrical power to EASYpure II LF.	Ensure that the EASYpure II LF power cord is connected to a live power source and completely plugged into electrical outlet.
Note: When unit is powered and not operating, nor in standby, “IdL” will normally be displayed.	Membrane switch leads not connected.	Disconnect unit from power. Check and reconnect. (See Fig. 11)
	Main power switch off.	Place to “On” position.
	Fuses blown or not installed properly.	Check to make sure proper fuses were installed.
		Replace the fuses as indicated in the **Fuse Replacement** section.
Pump does not run. Display showing purity information.	Loose wire connection to pump.	Ensure pump is properly connected to display/control board (PC1286X1).
	Display/control board is defective.	Replace board. Call Barnstead International Technical Service.
	Pump worn out or defective.	Replace pump. Call Technical Service.
Recirculated water will not rinse up to desired purity level.	Exhausted cartridge	Replace the cartridge as indicated in the **Cartridge Replacement** section.
	Cartridges out of order.	Install the cartridges in the proper order as indicated in the **Cartridge Installation** section.
	Dirty resistivity cell.	Clean resistivity cell as indicated in the **Maintenance and Servicing** section.
	Water path restriction.	Check tubing for constriction (kinks) or blockages.
	Resistivity meter board out of tolerance.	Replace board (PCX70). Call Technical Service.

Problem (cont.)	Possible Causes (cont.)	Action (cont.)
Reduced or no product flow from the 0.2 filter assembly.	0.2 micron final filter clogged.	Replace the 0.2 filter assembly as indicated in the **0.2 Micron Final Filter Replacement** section.
	Water path restriction	Check tubing for constriction (kinks) or blockages.
	Feedwater quick disconnect not fully seated.	Check quick disconnect, ensuring it is fully connected.
	Customer water supply not on.	Turn on water supply.
	Leaking check valve.	Check for water flow out of end of check valve. See Fig. 11.
0.2 micron final filter clogs rapidly after replacement.	Possible feedwater contamination.	Call Technical Service for possible feedwater testing.
	Cartridges not properly rinsed up before use.	Rinse up cartridges as described in **Cartridge Rinse-Up Procedures**. Replace the 0.2 micron final filter assembly as indicated in the **0.2 Micron Final Filter Replacement** section.
	EASYpure II LF contaminated with bacteria.	Sanitize EASYpure II LF according to the instructions in **System Sanitization.** Replace the 0.2 micron final filter assembly as indicated in the **0.2 Micron Final Filter Replacement** section.
Short cartridge life.	Cartridges being used are beyond expiration date.	Check the expiration date. Cartridges begin to lose capacity after being stored two years from the date of manufacture. Replace the cartridges with unexpired ones.
	Change in feedwater characteristics.	Call Technical Service for possible feedwater testing.
	Increased product water usage.	Verify usage.
Water leakage inside EASYpure II LF.	Loose connections.	Tighten connections.
	Tubing is not inserted completely.	Insert tubing completely. See **Push-to-Connect Tubing Installation** section of this manual.
	Missing or defective cartridge o-rings.	Install or replace cartridge o-rings.
	Leak at cartridge.	Make sure cartridge access door is closed and latched.
Water leakage at a final filter	Not installed far enough.	Install or screw in further and/or add Teflon tape.

Error Conditions

Problem	Possible Causes	Action
Display reads “Er1”. (Purity measurement error)	Air in system.	Purge air from system by drawing off water according to the instructions in the Operation section.
	Resistivity cell not connected to PCX70 meter board connection (P1).	Check resistivity cell lead connections (P1) on circuit board. (See exploded views on Fig. 11)
	Resistivity cell dirty.	Clean cell and reinstall.
	Resistivity cell out of tolerance.	Replace resistivity cell.
Display reads “Er2”. (Water supply error)	Water supply not available.	Check water supply connection and/or level in storage tank.
	Momentary loss of internal feedwater pressure.	
	Pressure switch not connected properly.	Check pressure switch connection (J3) at display/control board PC1286X1. (See Wiring Diagram)
	Internal pressure switch out of tolerance.	Replace pressure switch. Call Technical Service.
Display reads “Er4”. (Cell temperature sensor error)	Resistivity cell not connected to meter board (PCX70).	Check resistivity cell lead connection (P1) on meter board. (PCX70) See Fig. 11.
	Resistivity cell dirty.	Clean cell and reinstall.
	Resistivity cell temperature sensor out of tolerance.	Replace resistivity cell (E703X1A).
	Meter board out of tolerance.	Replace meter board (PCX70). Call Technical Service.
Display reads “Er5”. (Meter board data error)	PC board communication trouble.	Cycle power.
	Meter board not connected to display/control board.	Check connection from meter board (PCX70 10 pin connector) to display/control board (J2). Refer to Wiring Diagram.
	Meter board (PCX70) out of tolerance.	Replace meter board (PCX70). Call Technical Service.

Replacement Parts

Consumables

Consumable parts are those *required* to support the day-to-day operation of this equipment. Barnstead International establishes two types of consumables; those items that *must* periodically be replaced to maintain performance (filters, resin cartridges, etc.) and other items of limited life (fuses, etc.) that you can expect to replace on a more or less random basis. Where practical, Barnstead International recommends the frequency of replacement, or provides information on life expectancy from which you may calculate a replacement interval compatible with your usage pattern.

The replacement of consumable parts is discussed in the **Maintenance and Servicing** section to assist you in accomplishing your own service. Consumables may be ordered separately and in some cases, as an expendables kit. Check with your Barnstead International representative for additional information on the expendables kit.

Description	Catalog No.	Recommended Quantity	Max. Shelf Life
EASYpure Kit Ultra low Organics Deionized Feed	D502124	1	2 years[1]
EASYpure Kit Ultra low Organics Distilled or RO Feed	D502125	1	2 years[1]
EASYpure Kit Type I Deionized Feed	D502126	1	2 years[1]
EASYpure Kit Type I Distilled or RO Feed	D502127	1	2 years[1]
EASYpure High Purity/Low TOC Cartridge	D50229	1	2 years[1]
Pretreatment Cartridge DI Feed	D50230	1	2 years[1]
Pretreatment Cartridge RO - Distilled Feed	D50231	1	2 years[1]
Ultrapure Mixed Bed Cartridge	D50233	1	2 years[1]
0.2 Micron Final Filter and Bell Assembly	D3750	2	N/A
Fuse, Power Entry			
100-120 volt (slow blow 1.6 amp)	FZX47	2	N/A
240 volt (IEC127 timelag 0.63 amp)	FZX54	2	N/A
Sanitization Syringe	CMX25	2	6 months

[1] This is reference information. Please check actual expiration dates on individual cartridges for shelf life end dates. Cartridges used past the shelf lifetimes will exhibit decreased capacity.

Note
Shelf life will be inaccurate if products are taken out of their original packaging.

General Maintenance

General maintenance parts are defined as laboratory level repair parts which do not require great expertise or special tools for installation. Barnstead International recommends that you stock the general maintenance parts as an aid to ensuring the continued operation of this equipment.

Description	Catalog No.	Recommended Quantity
Check Valve	02214	1
Pressure Regulating Valve	PMX252	1
Quick Disconnect, Body	CUX12	1
Quick Disconnect, Insert	CUX9	1
Hose Barb Fitting	05930	1

Safety Stock

For critical applications where performance with *minimum* downtime is required, Barnstead International recommends that you maintain a local stock of those parts listed in the GENERAL MAINTENANCE PARTS and SAFETY STOCK sections.

Description	Catalog No.	Recommended Quantity
Replacement Display/Control Board	PC1286X2	1
Resistivity Meter Board	PCX70	1
Pump Ass'y	PU1286X1	1
Resistivity Cell	E703X1A	1
Resistivity Cell O-ring	GSX29	1
Draw-Off Valve Ass'y	PM741X1A	1
Pressure Switch	SW1286X1	1
Power Supply	TNX116	1

Ordering Procedures

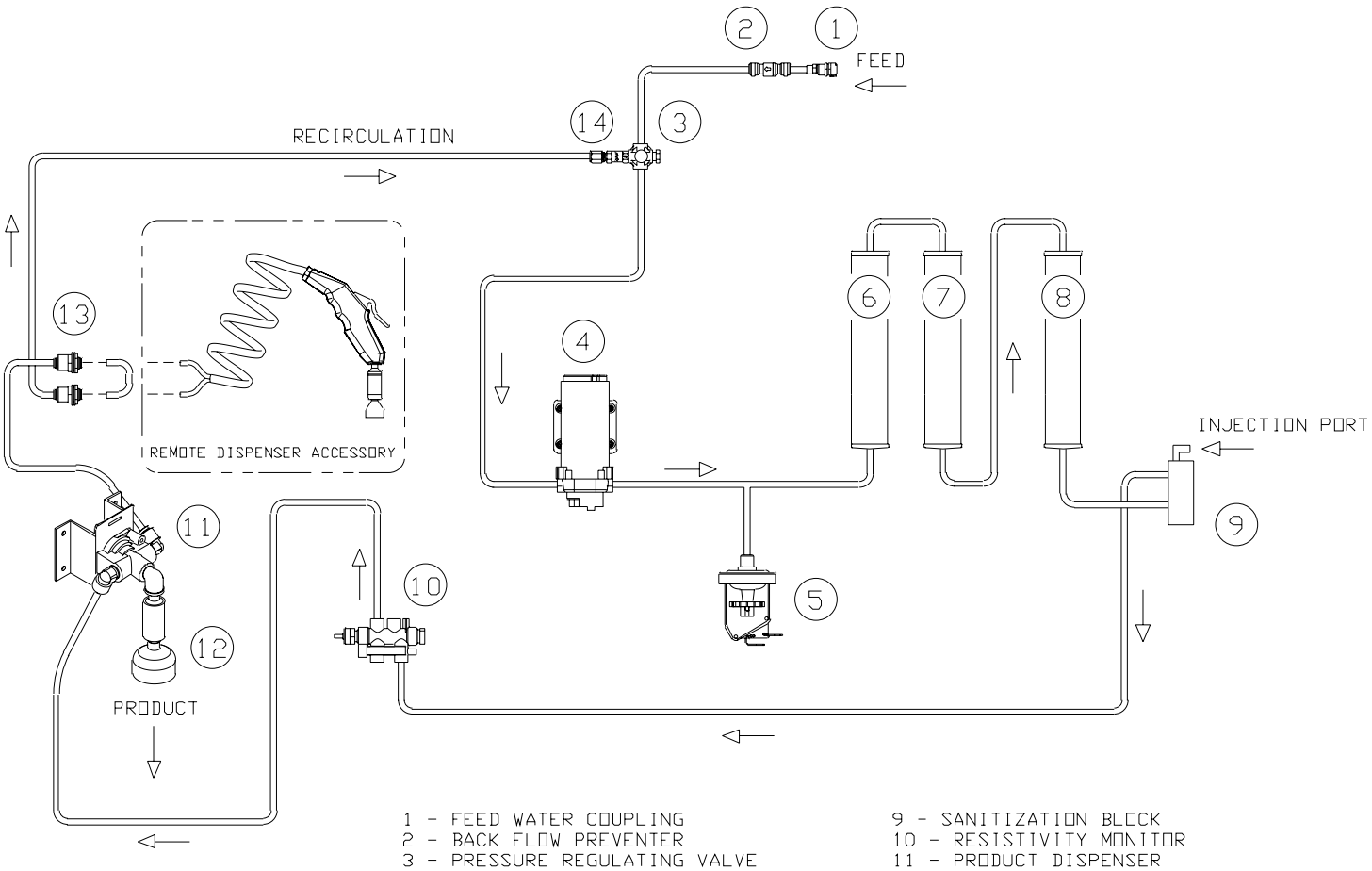
Please refer to the Specification Plate for the complete model number, serial number and series number when requesting service, replacement parts or in any correspondence concerning this unit.

All parts listed herein may be ordered from the Barnstead International dealer from whom you purchased this unit or can be obtained promptly from the factory. When service or replacement parts are needed we ask that you check first with your dealer. If the dealer cannot handle your request, contact our Customer Service Department at 563-556-2241 or 800-553-0039.

Prior to returning any materials to Barnstead International Corp., please contact our Customer Service Department for a “Return Goods Authorization” number (RGA). Material returned without an RGA number will be returned.

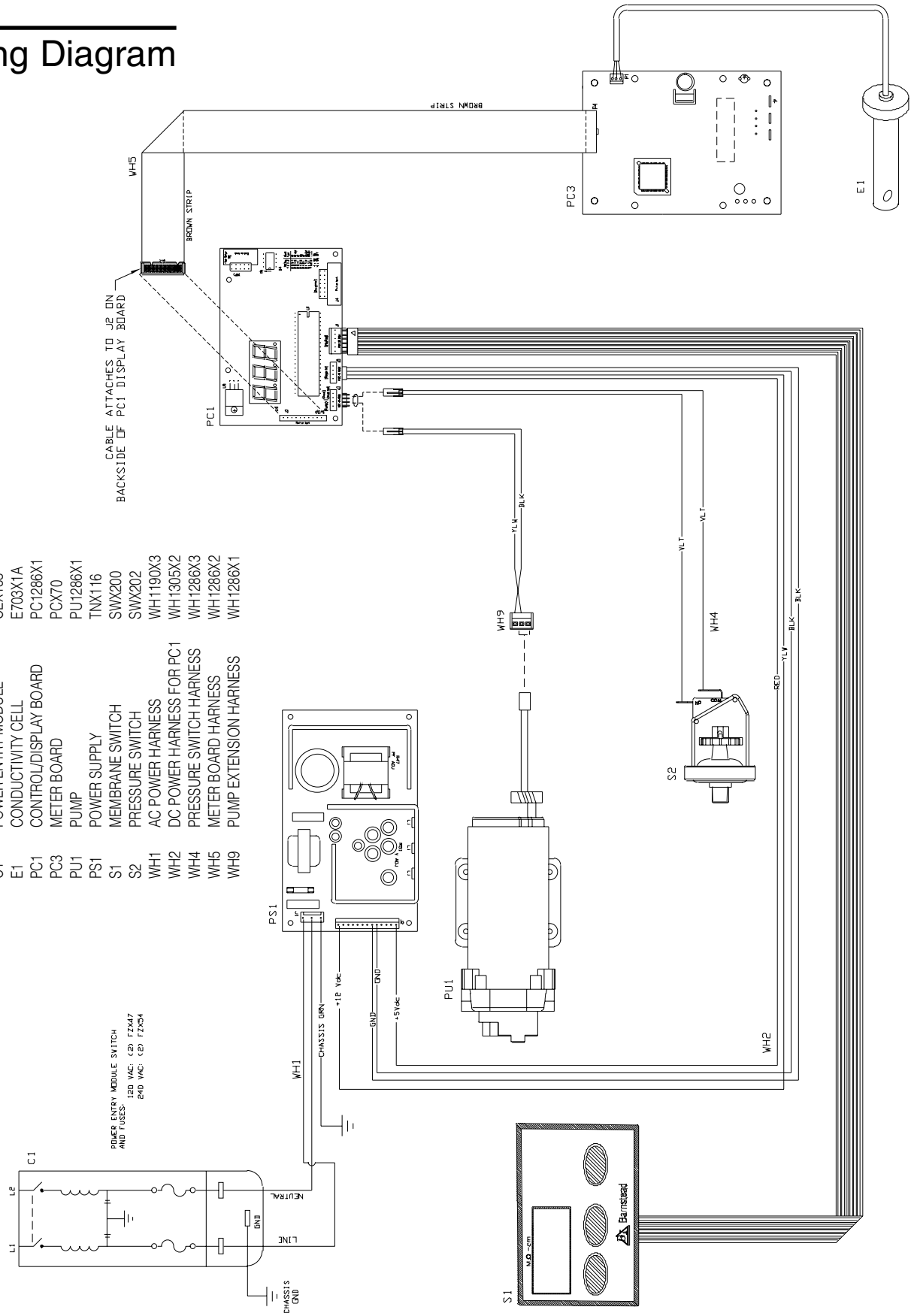
Technical Information

Water Process Flow Diagram



1 - FEED WATER COUPLING
2 - BACK FLOW PREVENTER
3 - PRESSURE REGULATING VALVE
4 - PUMP
5 - LOW PRESSURE SENSOR
6 - PRETREATMENT CARTRIDGE
7 - ION-EXCHANGE CARTRIDGE
8 - ION-EXCHANGE CARTRIDGE
9 - SANITIZATION BLOCK
10 - RESISTIVITY MONITOR
11 - PRODUCT DISPENSER
12 - .2µm FINAL FILTER
13 - REMOTE DISPENSER COUPLING
14 - NON-RETURN CHECK VALVE

Wiring Diagram



REF.	DESCRIPTION	D7381 (LF)
C1	POWER ENTRY MODULE	CEX183
E1	CONDUCTIVITY CELL	E703X1A
PC1	CONTROL/DISPLAY BOARD	PC1286X1
PC3	METER BOARD	PCX70
PU1	PUMP	PU1286X1
PS1	POWER SUPPLY	TNX116
S1	MEMBRANE SWITCH	SWX200
S2	PRESSURE SWITCH	SWX202
WH1	AC POWER HARNESS	WH1190X3
WH2	DC POWER HARNESS FOR PC1	WH1305X2
WH4	PRESSURE SWITCH HARNESS	WH1286X3
WH5	METER BOARD HARNESS	WH1286X2
WH9	PUMP EXTENSION HARNESS	WH1286X1

One Year Limited Warranty

Barnstead International ("BARNSTEAD") warrants that if a product manufactured by Barnstead shall be free of defects in materials and workmanship for one (1) year from the first to occur of (i) the date the product is sold by BARNSTEAD or (ii) the date the product is purchased by the original retail customer (the "Commencement Date"). Except as expressly stated above, BARNSTEAD MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCTS AND EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF DESIGN, MERCHANT ABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

An authorized representative of BARNSTEAD must perform all warranty inspections. In the event of a defect covered by BARNSTEAD's warranty, BARNSTEAD shall, as its sole obligation and exclusive remedy, provide free replacement parts to remedy the defective product. In addition, for products sold by BARNSTEAD within the continental United States or Canada, BARNSTEAD shall provide provide free labor to repair the products with the replacement parts, but only for a period of ninety (90) days from the Commencement Date.

BARNSTEAD's warranty provided hereunder shall be null and void and without further force or effect if there is any (i) repair made to the product by a party other than BARNSTEAD or its duly authorized service representative, (ii) misuse (including use inconsistent with written operating instructions for the product), mishandling, contamination, overheating, modification or alteration of the product by any customer or third party or (iii) use of replacement parts that are obtained from a party who is not an authorized dealer of BARNSTEAD.

Heating elements, because of their susceptibility to overheating and contamination, must be returned to the BARNSTEAD factory and if, upon inspection, it is concluded that failure is due to factors other than excessive high temperature or contamination, BARNSTEAD will provide warranty replacement. As a condition to the return of any product, or any constituent part thereof, to BARNSTEAD's factory, it shall be sent prepaid and a prior written authorization from BARNSTEAD assigning a Return Goods Number to the product or part shall be obtained.

IN NO EVENT SHALL BARNSTEAD BE LIABLE TO ANY PARTY FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR FOR ANY DAMAGES RESULTING FROM LOSS OF USE OR PROFITS, ANTICIPATED OR OTHERWISE, ARISING OUT OF OR IN CONNECTION WITH THE SALE, USE OR PERFORMANCE OF ANY PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE), ANY THEORY OF STRICT LIABILITY OR REGULATORY ACTION.

The name of the authorized Barnstead International dealer nearest you may be obtained by calling 1-800-446-6060 (563-556-2241) or writing to:

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